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Two new species of *Septobasidium* (*Septobasidiaceae*) and *S. pallidum* new to China

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Abstract — Two new species, *Septobasidium meridionale* on *Litsea cubeba* associated with *Aulacaspis* sp. and *S. aulacaspidis* on an unidentified tree associated with *Aulacaspis* sp., are described. *Septobasidium pallidum* on *Zanthoxylum bungeanum*, *Z. simulans,* and *Pyrus phaeocarpa* is new to China.

Key words — *Pucciniomycetes*, *Septobasidiales*, taxonomy

Previously, a new species of *Septobasidium* was found in Hainan province (Lu & Guo 2009a). In December 2009, many specimens of *Septobasidium* were collected from the same area. Among them, an additional two new species are described as follows:

Septobasidium meridionale C.X. Lu & L. Guo, **sp. nov.** FIGS. 1–7

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Basidiomata resupinata, 4–8.5 cm longa, 1–6 cm lata, alba vel brunnea, margine determinata, superficie laevia vel vulutina, in sectione 840–1000 µm crassa. Subiculum brunneum vel hyalinum, 20–50 µm crassum. Columnae hyalinae vel brunneolae, 40–130 µm altae, 40–340 µm latae, ex hyphis 3–4 µm latis compositae, superne ramosae tunc strato hypharum 580–780 µm alto formatae, interdum strata horizontalia formantes. Hymenium 40–90 µm crassum, hyalinum vel brunneum. Basidia cyclindrica, recta vel curvata, 4-cellularia, 27–36 × 7–9.5 µm, hyalina vel brunneola. Sine probasidio. Basidiosporae non visae. Haustoria ex hyphis irregulariter spiralibus constantia.

TYPE: On *Litsea cubeba* Pers. (*Lauraceae*): China, Hainan, Bawangling, Nanchahe, alt. 600 m, 11.XII.2009, Y.F. Zhu & L. Guo 128, HMAS 240076 (**holotype**), associated with *Aulacaspis* sp. (*Diaspididae*).

*corresponding author

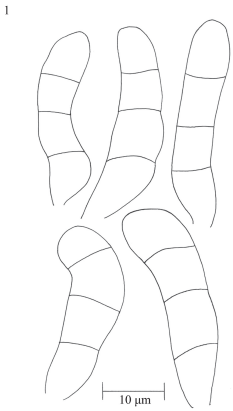

Fig. 1. Basidia of *Septobasidium meridionale* (HMAS 240076, holotype).

Basidiomata on trunks and branches, resupinate, perennial, 4–8.5 cm long, 1–6 cm wide, white or brown; margin determinate; surface smooth or velutinous. In section 840–1000 μm thick. Subiculum 20–50 μm thick, brown or hyaline. Pillars hyaline or brownish, 40–130 μm high, 40–340 μm wide, hyphae of pillars 3–4 μm thick. Hyphal layer 580–780 μm high, sometimes forming a horizontal layer. Hymenium 40–90 μm thick, hyaline or brown. Basidia arising directly from the hyphae, cylindrical, straight or curved, 4-celled, 27–36 × 7–9.5 μm, hyaline or brownish, without a probasidial cell. Basidiospores not seen. Haustoria consisting of irregularly coiled hyphae.

Remarks: Morphologically, *Septobasidium meridionale* is similar to *S. septobasidioides* (Henn.) Höhn. & Litsch., from which it differs in having short pillars (40–130 μm vs 350–450 μm) and smaller basidia (27–36 × 7–9.5 μm vs 40–55 × 8.4–10 μm), and sometimes forming a horizontal layer.

Septobasidium aulacaspidis C.X. Lu & L. Guo, **sp. nov.** Figs. 8–12

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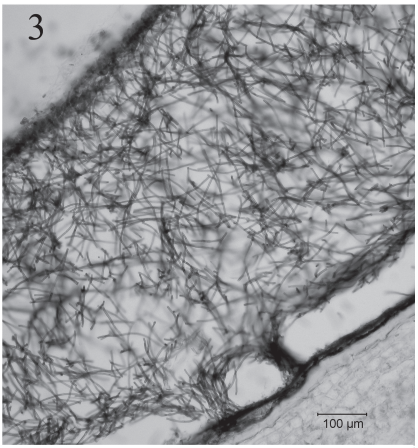
Basidiomata resupinata, 0.2–7 cm longa, 0.1–5 cm lata, alba vel cinnamomeo-brunnea, margine indeterminata, superficie laevia vel velutina, in sectione 360–550 μm crassa. Subiculum brunneum, 30–50 μm crassum. Columnae hyalinae vel brunneolae, 200–260 μm altae, 20–120 μm latae. Hymenium 50–80 μm crassum. Basidia cyclindrica, recta vel curvata, 4-cellularia, 28–50 × 5–10 μm, hyalina vel brunnea. Basidiosporae ovoideae vel reniformes, 10–16 × 4–5.5 μm. Sine probasidio. Haustoria ex hyphis irregulariter spiralibus constantia.

Figs. 2–7. *Septobasidium meridionale* (HMAS 240076, holotype). 2. Basidiomata on trunk. 3–4. Sections of basidiomata. 5–6. Basidia (arrows). 7. Haustoria.

2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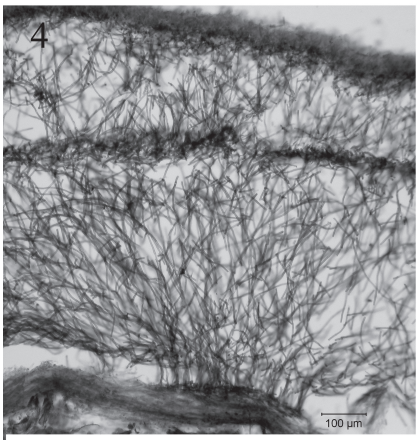
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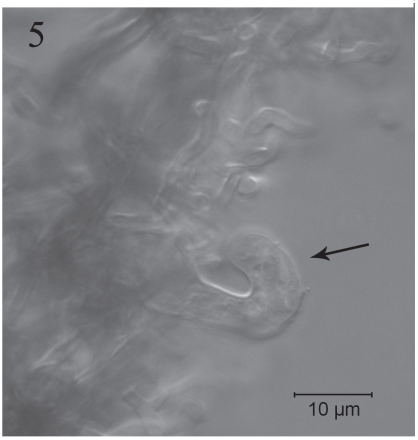
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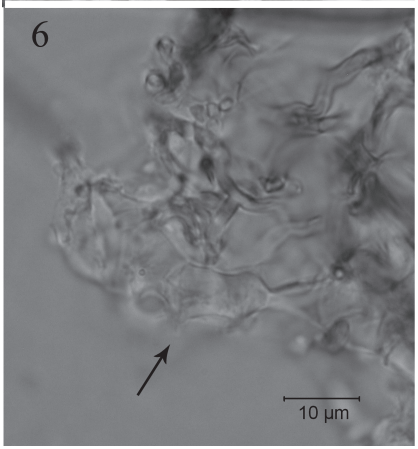
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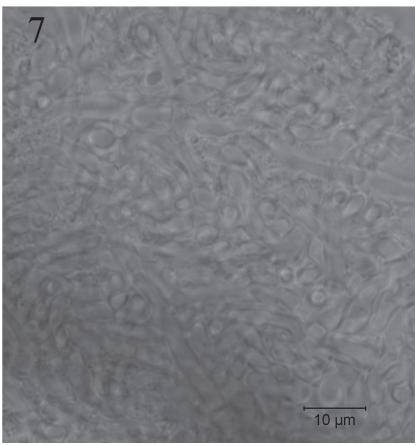
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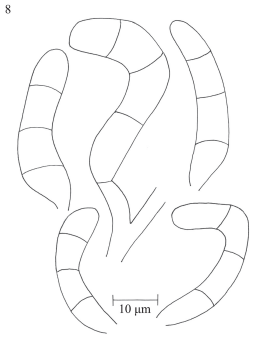


Fig. 8. Basidia of *Septobasidium aulacaspidis* (HMAS 240074, holotype).

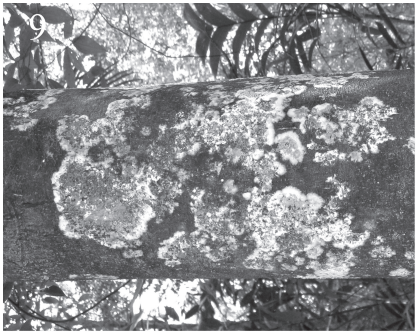
Type: On unidentified tree [probably *Neolitsea* sp. (*Lauraceae*)]: China, Hainan, Jianfengling, alt. 900 m, 11.XII.2009, S.H. He 2803, HMAS 240074 (**holotype**), associated with *Aulacaspis* sp. (*Diaspididae*).

Basidiomata on trunks, resupinate, subcircular or irregular, often confluent 0.2–7 cm long, 0.1–5 cm wide, white or cinnamon-brown; margin indeterminate; surface smooth or velvety. In section 360–550 μm thick. Subiculum 30–50 μm thick, brown. Pillars 200–260 μm high, 20–120 μm wide, hyaline or brownish. Hymenium 50–80 μm thick, with irregularly arranged upright hymenial hyphae. Basidia arising directly from the hyphae, cylindrical, straight or curved, 4-celled, 28–50 × 5–10 μm, hyaline or brown, without a probasidial cell. Sterigmata conical, 5–13 × 2 μm. Basidiospores ovoid or reniform, 10–16 × 4–5.5 μm, pale yellowish brown. Haustoria consisting of irregularly coiled hyphae.

Remarks: *Septobasidium aulacaspidis* is similar to *S. pallidum*, but differs mainly in having indeterminate margin, smooth and velvety surfaces of basidiomata, and tall pillars (200–260 μm vs 84 μm). *Septobasidium pallidum* has determinate margin, non-velvety surface of basidioma, and short pillars.

Recently, several specimens of a *Septobasidium* sp. on *Zanthoxylum bungeanum* and *Pyrus phaeocarpa* were collected in Sichuan province. They were identical to a specimen of *Septobasidium* sp. on *Zanthoxylum simulans* previously deposited in our herbarium. No basidia were found in the specimen. The fungus is identified as *S. pallidum*, a species unrecorded previously in China:

Figs. 9–12. *Septobasidium aulacaspidis* (HMAS 240074, holotype). 9. Basidiomata on trunk. 10. Section of basidioma. 11. Basidia (arrows). 12. Haustoria. Figs. 13–16. *Septobasidium pallidum* (HMAS 199578). 13. Basidiomata on trunk. 14. Section of basidioma. 15. Basidium (arrow). 16. Haustoria.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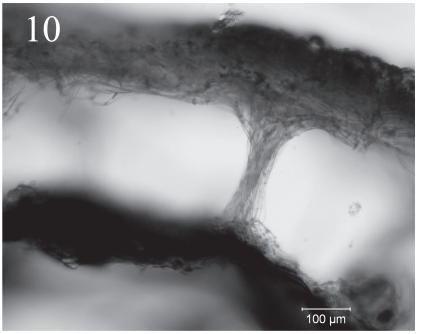
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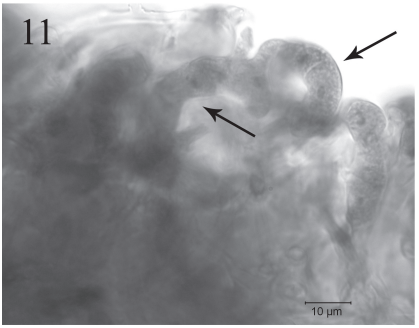
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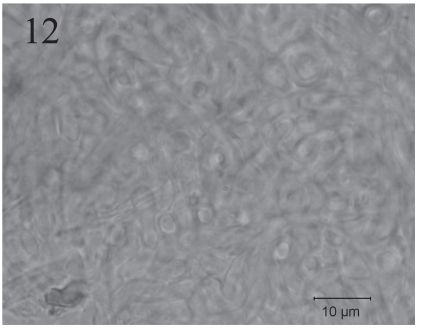
10 µm


12
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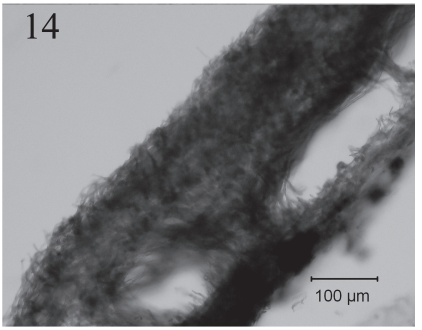
13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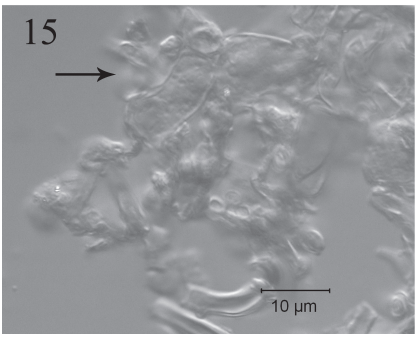
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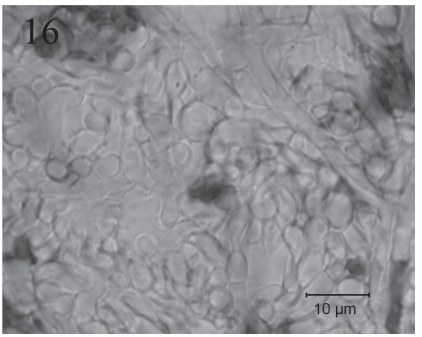
10 µm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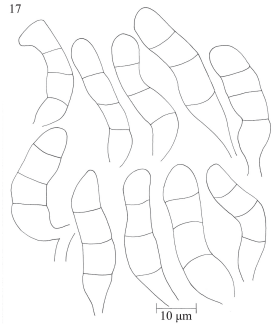

Fig. 17. Basidia of *Septobasidium pallidum* (HMAS 199578).

Septobasidium pallidum Couch ex L.D. Gómez & Henk, Lankesteriana 4(1): 88, 2004. Figs. 13–17

Basidiomata on trunks and branches, resupinate, subcircular, 0.2–7 cm long, 0.2–3 cm wide, patches frequently confluent, tilleul buff, yellowish-brown or brown; surface often smooth, with mounds and wrinkles, sometimes cracked; margin determinate, white. In section 220–510(–720) µm thick. Subiculum 20–60 µm thick. Pillars 40–90 µm high, 20–140 µm thick. Hyphal layer 100–400(–600) µm high. Hymenium 50–100 µm thick. Basidia arising directly from the hyphae without a probasidial cell, cylindrical, straight or slightly curved, 4-celled, 17–38(–42) × 6–12 µm, hyaline or brown. Sterigmata 12–27 µm long, 2–3 µm wide. Hymenial hyphae irregularly arranged. Basidiospores not seen. Haustoria consisting of irregularly coiled hyphae.

Specimens examined: On *Zanthoxylum bungeanum* Maxim. (*Rutaceae*): China, Sichuan, Jinyang, alt. 1100 m, 15.VIII.2009, S.H. He, C.X. Lu, Y.F. Zhu & L. Guo 2680, HMAS 199578; Jinyang, alt. 600 m, 15.VIII.2009, S.H. He, C.X. Lu, Y.F. Zhu & L. Guo 2686, HMAS 196491; Jinyang, Wuke, alt. 1100 m, 15.VIII.2009, S.H. He, C.X. Lu, Y.F. Zhu & L. Guo 2681, HMAS 199582; Jinyang, Mufu, alt. 1600 m, 15.VIII.2009, S.H. He, C.X. Lu, Y.F. Zhu & L. Guo 2685, HMAS 196487; Mianning, Manshuiwan, Ganghe, alt. 1740 m, 24.VIII.2009, S.H. He, C.X. Lu, Y.F. Zhu & L. Guo 2789, HMAS 196493; Xide, Mianshan, Dengxiangying, alt. 2300 m, 23.VIII.2009, S.H. He, C.X. Lu, Y.F. Zhu & L. Guo 2781, HMAS 196492.

On *Zanthoxylum simulans* Hance (*Rutaceae*): China, Sichuan, Hanyuan, 14.XII.1937, Y. Hu, HMAS 10165.

On *Pyrus phaeocarpa* Rehder (*Rosaceae*): China, Sichuan, Xide, Tanshan, alt. 1860 m, 23.VIII.2009, S.H. He, C.X. Lu, Y.F. Zhu & L. Guo 2784, HMAS 199628.

To date, 26 species of *Septobasidium* have been reported in China (Sawada 1933, Couch 1938, Teng 1963, Tai 1979, Kirschner & Chen 2007, Lu & Guo 2009a,b,c, 2010, Lu et al. 2010) including the three species reported in this paper.

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